

10010828-1

10/617,547

IN THE CLAIMS:

The content and status of each claim follows:

1. (currently amended) A device comprising:

an electronically controllable drop ejection device in fluid communication with an electrochemical cell, the drop ejection device ~~capable of~~ configured for conveying quantities of a chemical composition capable of oxidative reaction into the electrochemical cell.

2. (original) The device of claim 1 further comprising:

a fluid storage chamber containing the chemical composition capable of oxidative reaction, the fluid storage chamber in communication with the drop ejection device; and

an electrochemical cell having an inlet and an outlet and anode, the electrochemical cell supporting oxidative reaction of the chemical composition.

3. (original) The device of claim 1 further comprising a channel for removing a byproduct of the oxidative reaction from the electrochemical cell, the channel communicating with the electronically controllable drop ejection device, wherein the electronically controllable drop ejection device introduces the reaction byproduct into contact with the chemical composition capable of oxidative reaction in a stoichiometric relationship appropriate for function of the electrochemical cell.

4. (original) The device of claim 3 wherein the drop ejection device is configured to affect proportionate delivery of the byproduct of oxidative reaction and the chemical composition capable of oxidative reaction into contact with the electrochemical cell.

10010828-1

10/617,547

5. (original) The device of claim 1 further comprising at least one external interface device, the external interface device receiving at least one input command from a source external to the device, the input command actionable on the drop on demand ejection device.
6. (original) The device of claim 1 further comprising an admixer in fluid communication with the drop ejection device, the admixer tank configured to receive the chemical composition capable of oxidative reaction and at least one other additional material.
7. (original) The device of claim 6 wherein the drop ejection device includes at least one electronically controllable nozzle member.
8. (original) The device of claim 7 wherein the nozzle member directs ejection of chemical composition capable of oxidative reaction into a fluid stream, the fluid stream being conveyed onto the anode of the electrochemical cell.
9. (original) The device of claim 7 wherein the nozzle member directs the chemical composition into the admixer, the fluid stream conveyed from the admixer into contact with the anode.
10. (original) The device of claim 1 wherein a first electronically controllable drop ejection device is in fluid communication with a first composition capable of oxidative reaction and a second electronically controllable drop ejection device is in fluid

10010828-1

10/617,547

communication with at least one second composition capable of admixture with the first chemical composition in a manner which facilitates the oxidative reaction.

11. (original) The device of claim 10 wherein the compositions are delivered to the anode in a manner that accomplishes admixture.
12. (original) The device of claim 10 further comprising an admixer in fluid communication with the drop ejection devices, the admixer configured to receive the materials and convey admixed materials to the electrochemical cell.
13. (original) The device of claim 10 further comprising a channel for removing at least one reaction byproduct from the electrochemical cell, the channel communicating with the second electronically controllable drop ejection device, wherein the second electronically controllable drop ejection device introduces the reaction byproduct into contact with the chemical composition capable of oxidative reaction in a stoichiometric relationship appropriate for function of the electrochemical cell.
14. (original) The device of claim 1 wherein the electronically controllable drop ejection device comprises a resistor surface having at least one catalytic material positioned thereon, the catalytic material reactive with a component in the chemical composition capable of oxidative reaction to effect at least partial catalytic reforming of the component of the chemical composition.

10010828-1

10/617,547

15. (original) The device of claim 14 wherein catalytic reforming occurs prior to exit from the drop ejection device.

16. (original) The device of claim 1 wherein the drop ejection device further comprises a resistor, the resistor having a surface reactive with a component of the chemical composition capable of oxidative reaction.

17. (original) The device of claim 16 wherein the resistor comprises at least one catalytic material, the catalytic material capable of supporting at least partial catalytic reformation of at least one component of the composition capable of oxidative reaction.

18. (original) The device of claim 10 wherein the drop ejection device further comprises a resistor, the resistor having a surface which is reactive with a component of the second chemical composition.

19-26. (cancelled)

27. (original) An electrochemical system comprising:  
an electrochemical cell capable of sustaining at least one oxidation reaction process;  
and  
a fuel supply apparatus delivering a composition containing at least one compound capable of oxidative reaction into the electrochemical cell, the fuel supply apparatus comprising at least one electronically controllable drop ejection device and at least one fluid storage chamber.

10010828-1

10/617,547

28. (original) The electrochemical system of claim 27 wherein the electrochemical cell comprises an anode and the fuel supply apparatus introduces a quantity of the composition into contact with the anode.

29. (original) The electrochemical system of claim 28 wherein the electronically controllable drop ejection device comprises an electronically controlled nozzle member in fluid communication with the fluid storage chamber.

30. (original) The electrochemical system of claim 29 wherein the fuel supply apparatus comprises at least two fluid storage chambers, the fluid storage chambers containing materials utilized in the oxidative reaction process occurring in the electrochemical cell.

31. (original) The electrochemical system of claim 27 wherein the composition containing at least one chemical component capable of undergoing oxidative reaction is contained in a first fluid storage chamber and wherein a second fluid storage chamber contains at least one compound which is complementary to the oxidative process occurring in the electrochemical cell.

32. (original) The electrochemical system of claim 31 wherein the fuel supply apparatus further comprises at least one compartment configured to transferably receive at least one byproduct of the oxidative reaction occurring in the electrochemical cell.

10010828-1

10/617,547

33. (original) The electrochemical system of claim 29 wherein electrochemical cell includes a channel for removing at least one reaction byproduct, the channel conveying the reaction byproduct into communication with the electronically controllable drop ejection device, wherein the electronically controllable drop ejection device introduces the reaction byproduct into contact with the chemical composition capable of oxidative reaction in a stoichiometric relationship appropriate for function of the electrochemical cell.

34. (original) The electrochemical system of claim 33 wherein the fuel supply apparatus further comprises an electronically controlled nozzle member in fluid communication with a fluid storage chamber.

35. (original) The electrochemical system of claim 31 further comprising at least one sensor detecting a product of the oxidative reaction occurring in the electrochemical cell.

36. (original) The electrochemical system of claim 34 further comprising an external interface device, the external interface device receiving an input command from a source external to the device, the input command actionable on the drop ejection device.

37. (original) The electrochemical system of claim 36 further comprising an admixer in fluid communication with the nozzle member, the admixer configured to receive the chemical composition capable of oxidative reaction and at least one additional material and to initiate admixture of the received materials.

10010828-1

10/617,547

38. (original) The electrochemical system of claim 27 further comprising: a channel for removing at least one reaction byproduct from the electrochemical cell, the channel communicating with the associated electronically controllable drop ejection device, wherein the associated electronically controllable drop ejection device introduces the reaction byproduct into contact with the composition capable of oxidative reaction in a stoichiometric relationship appropriate for function of the electrochemical cell.

39. (original) The electrochemical system of claim 38 wherein the drop ejection device includes at least one electronically controllable nozzle member.

40. (original) The electrochemical system of claim 27 further comprising an external interface device, the external interface device receiving an input command from a source external to the device, the input command actionable on the drop ejection device.

41. (original) The electrochemical system of claim 27 wherein the drop ejection device further comprises at least one resistor, the resistor having a surface which is reactive with at least one component of the composition capable of oxidative reaction.

42. (original) The electrochemical system of claim 41 wherein the reactive surface of the resistor has at least one catalytic material imparted thereon, the catalytic material capable of supporting at least partial catalytic reformation of at least one component of the composition capable of oxidative reaction.

10010828-1

10/617,547

43. (original) A power generator comprising:
- an electrochemical cell having at least one reactive surface;
  - an electronically controllable jetting device supplying a fuel to the at least one reactive surface in the electrochemical cell; and
  - a recirculating circuit configured to convey a portion of at least one chemical byproduct produced in the electrochemical cell into reintegrative contact with the fuel.
44. (original) The power generator of claim 43 wherein the electronically controllable jetting device comprises:
- a reservoir containing a fuel capable of oxidative reaction;
  - a nozzle member in communication with the reservoir; and
  - a controller operable on the nozzle member, the controller regulating ejection of discrete volumes of fuel composition into the electrochemical cell.
45. (original) The power generator of claim 44 wherein the jetting device further comprises at least one resistor surface, the resistor surface having at least one catalytic material positioned thereon, the catalytic material reactive with at least one component of the fuel to initiate at least partial catalytic reforming of at least one component of the fuel prior to entry into the electrochemical cell.
46. (original) The power generator of claim 44 further comprising a regulator, the regulator operable on the recirculating circuit to deliver measured quantities of recirculated byproduct into contact with the fuel in at a specified ratio range, the specified ratio range



10010828-1

10/617,547

being one which will facilitate oxidative reaction processes proceeding in the electrochemical cell.

47. (original) The power generator of claim 43 further comprising an admixer in fluid communication with the drop ejection device, the mixing tank configured to receive the fuel and at least one additional material and initiate admixture of the received materials.

48. (original) A device comprising: a storage chamber containing a fuel;  
an electrochemical cell associated with the fuel storage chamber;  
an electronically controllable jetting device for delivering discrete quantities of fuel from the storage chamber to the electrochemical cell;  
a recirculation circuit transporting at least a portion of a byproduct material produced in the electrochemical cell into contact with the fuel delivered from the storage chamber, and  
a power consuming device powered by the electrochemical cell.

49. (original) The device of claim 48 wherein the jetting device includes an electronically controllable nozzle member.

50. (original) The device of claim 49 wherein the storage chamber includes at least two storage compartments, one compartment adapted to contain the fuel and an additional compartment adapted to contain at least one component which is complimentary to the oxidative process occurring in the electrochemical cell.

51-72. (cancelled)

10010828-1

10/617,547

73. (new) The device of claim 1 wherein said drop ejection device comprises an inkjet drop ejection device.

74. (new) The device of claim 1 wherein said drop ejection device comprises a thermal drop ejection device.

75. (new) The device of claim 1 wherein said drop ejection device comprises a piezoelectric drop ejection device.

76. (new) The device of claim 1, wherein said drop ejection device comprises an nozzle plate having a plurality of nozzles.

77. (new) The device of claim 1, wherein said electrochemical cell comprises a anode comprised of stainless steel and a cathode comprises of a transition metal or transition metal oxide.

78. (new) The system of claim 27 wherein said drop ejection device comprises an inkjet drop ejection device.

79. (new) The system of claim 27 wherein said drop ejection device comprises a thermal drop ejection device.

80. (new) The system of claim 27 wherein said drop ejection device comprises a piezoelectric drop ejection device.

10010828-1

10/617,547

81. (new) The system of claim 27, wherein said drop ejection device comprises an nozzle plate having a plurality of nozzles.

82. (new) The system of claim 27, wherein said electrochemical cell comprises a anode comprised of stainless steel and a cathode comprises of a transition metal or transition metal oxide.

84. (new) The generator of claim 43 wherein said jetting device comprises an inkjet device.

85. (new) The generator of claim 43 wherein said jetting device comprises a thermal jetting device.

86. (new) The generator of claim 43 wherein said jetting device comprises a piezoelectric jetting device.

87. (new) The generator of claim 43, wherein said jetting device comprises an nozzle plate having a plurality of nozzles.

88. (new) The generator of claim 43, wherein said electrochemical cell comprises a anode comprised of stainless steel and a cathode comprises of a transition metal or transition metal oxide.

10010828-1

10/617,547

89. (new) The device of claim 48 wherein said jetting device comprises an inkjet drop ejection device.

90. (new) The device of claim 48 wherein said jetting device comprises a thermal drop ejection device.

91. (new) The device of claim 48 wherein said jetting device comprises a piezoelectric drop ejection device.

92. (new) The device of claim 48, wherein said jetting device comprises an nozzle plate having a plurality of nozzles.

93. (new) The device of claim 48, wherein said electrochemical cell comprises a anode comprised of stainless steel and a cathode comprises of a transition metal or transition metal oxide.